

Costs and Benefits of Requiring an Engagement Partner Signature: Recent Experience in the United Kingdom

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ABSTRACT: This paper investigates the effects on audit quality and audit fees of requiring the engagement partner to sign the audit report in the United Kingdom (U.K.). The effect of requiring the engagement partner to sign the audit report is timely since the Public Company Accounting Oversight Board (PCAOB) is considering mandating a similar requirement in the United States (U.S.). In the first year after the introduction of the signature requirement, we find a significant decline in abnormal accruals and the propensity to meet an earnings threshold, and we find a significant increase in the incidence of qualified audit reports and in earnings informativeness. In addition, audit fees are significantly higher in the post-signature period than in the pre-signature period. Moreover, we compare U.K. firms with a matched sample of U.S. firms and firms in other European countries in periods both before and after the U.K. adopted a signature requirement. Our results are generally consistent with the argument of improved audit quality in U.K. firms after the signature requirement is adopted.

Keywords: *PCAOB; engagement partner signature; United Kingdom; audit quality; audit fees; costs and benefits.*

Data Availability: *Data are available from public sources identified in the text.*

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I. INTRODUCTION

I used to sign off in the name of a firm. Now I'm certifying financial statements (on Form 10-K) under SOX in my personal name. I would like to believe . . . that it wouldn't have made a difference, but it does. It is *psychologically different*.

—Robert M. Tarola

Formerly a Big 8 audit partner and a CFO of a large multinational corporation (emphasis added)

At a theoretical level, we agree that requiring the engagement partner to sign the audit report may in some degree increase the engagement partner's sense of accountability to financial statement users. However, at a practical level in terms of audit quality, we do not believe there will be any appreciable benefit in light of the accountability already provided through a firm's system of quality control, the exposure of the engagement partner to personal sanction and penalty as provided under SEC and PCAOB rules and regulations, potential proceedings by State boards of accountancy and the threat of private litigation.

—Ernst & Young

Comment Letter

Given these quotes, it is an empirical question as to whether requiring the audit engagement partner to sign the audit report would improve audit quality. We provide empirical evidence on the consequences of introducing a partner signature requirement in a country similar to the United States (U.S.). The recent passage of the Companies Act in the United Kingdom (U.K.), requiring the engagement partner to sign the audit report, provides a natural experiment concerning whether an engagement partner signature requirement affects audit quality. For financial years ending in April 2009 or later the engagement partner must sign his or her name to the audit report in the U.K. ([PricewaterhouseCoopers \[PwC\] Legal 2010](#)). We examine whether financial reporting outcomes change in the U.K. after the introduction of the partner signature requirement. We consider changes in three earnings quality measures, which are also commonly used to proxy for audit quality: abnormal accruals, the propensity to meet an earnings threshold, and earnings informativeness. In addition, we consider changes in the propensity of the auditor to issue a qualified audit report, a direct outcome of the audit process. Given the responsibility of regulators to consider not only the benefits of a proposed rule, but also its costs, we examine changes in audit fees surrounding the implementation of the audit fee requirement.

Examining the effects of implementing a partner signature requirement in the U.K. is important for several reasons. First, the Public Company Accounting Oversight Board (PCAOB) is considering requiring the identification of the engagement partner in the audit report ([PCAOB 2011a](#)). Although identifying the engagement partner by name is not identical to requiring the partner to sign the report, such public identification may serve to increase partner accountability and transparency, which are the primary justifications for implementing a signature requirement ([PCAOB 2009](#)). Notwithstanding that the recent PCAOB proposal would require the identification of the partner, without requiring the partner to sign the report, the Board may yet require the engagement partner to sign the report. There is support for a partner signature requirement from at least one Board member ([Harris 2011](#)), and substantial support for a signature requirement among certain investors and banking regulators (e.g., [CalPERS 2009](#); [Council of Institutional Investors 2009](#); [AFL-CIO 2011](#); [Federal Housing Finance Agency 2011](#); [Muddy Waters Research 2011](#)). Given that the U.K. has already instituted a signature requirement, and given the cultural, institutional, and legal similarities between the U.K. and the U.S., we have a unique opportunity to conduct *ex ante*, archival research on an unresolved regulatory and public policy issue.

Second, whether requiring an individual to personally sign a document is an effective accountability mechanism is an important research question, separate from any regulatory consideration of implementing such a requirement. Prior research on accountability mechanisms have typically used experimental settings, and although there are certain advantages to experimental settings, we complement prior research by providing archival evidence on whether one accountability mechanism, engagement partner signature, is associated with audit quality and audit fees. Finally, we provide direct evidence on the effect of this regulatory change on audit quality and audit fees in the United Kingdom, an important capital market in its own right.

We employ a balanced panel design and compare U.K. firms in the last year before the implementation of the signature requirement with the same firms in the first year the signature requirement is effective. Consistent with our expectations, we find that audit quality improves in the U.K. after the effective date of the partner signature requirement. First, abnormal accruals significantly decline after the signature requirement. Second, the frequency of firms reporting a small earnings increase declines after the partner signature requirement. Third, the informativeness of earnings, measured as the association between return on assets and market return, increases post-signature. Fourth, there is a significant increase in the incidence of qualified audit opinions after the signature requirement. Changes in audit quality after the introduction of a partner signature requirement are consistent with better audit quality in all four cases, indicating that a partner signature requirement improves auditor performance. Such an improvement in audit quality could be due to auditors gathering more evidence and, as a result, being more effective in detecting earnings management activities and detecting conditions meriting a qualification of the audit opinion. Alternatively, the improvement in audit quality could be due to the auditor reporting more conservatively, which would be reflected in our tests of abnormal accruals, meeting an earnings benchmark, and issuing a qualified audit opinion. The market's recognition of this change in auditor behavior is consistent with earnings being more informative, and hence more valuable, to financial statement users.

In addition, we examine the effect of a partner signature requirement on audit fees. Even if a partner signature requirement improves audit quality, then any move by the PCAOB to implement a signature requirement in the U.S. is only socially optimal if the benefits of improved auditing and financial reporting exceed any increase in costs in the form of higher audit fees. We find a significant increase in audit fees after partners have to sign their names to the audit report.

We find evidence suggesting that the improvement in audit quality and the increase in audit fees are related to the implementation of the partner signature requirement in the U.K. However, it is possible that audit quality would have improved, and audit fees would have increased, absent the signature requirement in the U.K. To address this concern, we consider whether other changes occurred in the U.K. around the time the engagement partner signature requirement was implemented and, if so, whether these other changes might have led to the improvement in audit quality. Although the engagement partner signature requirement was part of the Companies Act of 2006, and the Act had a number of provisions, many of these provisions were already in effect in the U.K. (PwC Legal 2010, 7001). The two major provisions of the Companies Act affecting auditors were the (1) engagement partner signature requirement and (2) a provision that allows auditors to enter into a liability limitation agreement (PwC Legal 2010).

Prior research finds evidence suggesting that a reduction in auditor liability may result in a decrease in audit quality (Geiger and Raghunandan 2002; Geiger et al. 2006). However, even if audit quality does not decline, it seems unlikely that a decrease in litigation exposure would lead to an increase in audit quality. The other main change that occurred in the U.K. that could impact audit quality involved changes to the audit inspection reporting regime. Starting after January 1, 2008, the U.K.'s Audit Inspection Unit (AIU) provided the audit firm with a grade for each audit reflecting the results of its inspection. It also began providing "letter style reports" on individual

audits to the audit firm. However, the change in the AIU inspection report affects both our pre- and post-signature requirement periods. Although the AIU continued to make changes in the content of inspection reports after engagement partners were required to sign the audit report, these changes were related to aggregating grade data and formally using “letter style reports.” Thus, the likelihood that our post-signature results are mainly attributable to the improvement in the AIU reporting regime is low.¹

To provide further evidence on the relation between the partner signature requirement and improved audit quality and increased audit fees in the U.K., we compare the change in audit quality and audit fees in the U.K. from the pre- to the post-signature period with the comparable change in audit quality and fees in two non-U.K. regimes during the same time period. First, we compare audit quality and audit fees in the U.K. to quality and fees for a matched sample of firms in the U.S.,² where an audit partner signature requirement does not currently exist. Second, we compare audit quality in the U.K. to those for a matched sample of firms in other European countries that adopted a partner signature requirement before the U.K.³ A partner signature requirement was required for all E.U. firms by the Eighth Directive (PwC Legal 2010), and France, Germany, Luxembourg, and The Netherlands (hereafter, Four-country firms) adopted a signature requirement before the U.K. Thus, in both analyses, we compare U.K. firms subject to a change with a control sample of either U.S. or Four-country firms that is not subject to a change during the sample period.

When we compare U.K. firms with a matched-sample of U.S. firms, we find that U.K. firms have a larger decrease in abnormal accruals, a larger reduction in the likelihood of reporting a small earnings increase, a larger increase in the earnings response coefficient (ERC), and a larger increase in audit fees from the pre- to post-signature period.⁴ When we compare U.K. firms with a matched-sample of Four-country firms, we find that U.K. firms have a larger decrease in abnormal accruals, a larger reduction in the likelihood of reporting a small earnings increase, and a larger increase in the likelihood of receiving a qualified audit opinion from the pre- to post-signature period. There is no significant increase in the ERC for U.K. firms as compared to Four-country firms from the pre- to post-signature period.

Finally, in our additional analyses, we perform a strict change analysis by comparing changes in audit quality and audit fees in the year before the implementation of the signature requirement with changes in audit quality and audit fees during the first year the signature requirement is effective. That is, we examine whether there is a change in our audit-quality measures and in audit fees in the U.K. from year $t-1$ to year t , as compared to changes from year $t-2$ to year $t-1$. The dependent variables and all the control variables measure yearly changes. We find that changing from pre-signature to a signature is associated with a significant decline in abnormal accruals and the propensity to report a small earnings increase, and is associated with a significant increase in the informativeness of earnings, the propensity to issue qualified audit opinions, and audit fees. We also perform strict change analyses comparing U.K. firms to U.S. and Four-country firms and obtain similar results.

Overall, our results indicate that the implementation of a partner signature requirement in the U.K. has offered benefits to investors and other financial statement users. First, earnings

¹ We have consulted with representatives of the regulatory communities in the U.K., including the Auditing Practices Board (analogous to the PCAOB in the U.S.), and the Institute of Chartered Accountants in England and Wales (ICAEW) concerning other contemporaneous changes in legislation that could impact audit quality. The changes we discuss in the paper are those most likely to affect audit quality.

² We match on year, industry, size, and profitability.

³ The related discussion in Section III explains that we are unable to get audit fee data for these other European countries.

⁴ We do not compare qualified audit opinions for U.K. and U.S. firms because qualified audit opinions are not available for U.S. firms.

management has declined, whether measured by abnormal accruals or the propensity to meet an earnings threshold. In addition, the incidence of qualified audit opinions has increased. Perhaps because of this decline in earnings management and/or because of a greater willingness by auditors to issue qualified opinions, the informativeness of earnings has increased. Importantly, the results for both control samples—U.S. firms that have not implemented a signature requirement, and firms in other European Countries that adopted the partner signature requirement before the U.K.—suggest that the audit quality improvements experienced in the U.K. after the partner signature requirement are unlikely to be due to other changes in the audit or business environment not included in our model. However, these benefits have come at a cost. We observe a significant increase in audit fees after the signature requirement becomes effective in the U.K. Whether the benefits of the U.K. signature requirement exceed its costs is a policy decision for U.K. regulators and legislators. The U.K. experience suggests that the implementation of a signature requirement in the U.S., while likely to improve audit and financial reporting quality, is also likely to increase audit costs. The PCAOB needs to carefully weigh these likely costs and benefits before deciding whether to implement a signature requirement in the U.S.

Our paper contributes to the literature by providing initial archival evidence on the impact of an important regulatory rule—an audit partner signature requirement—on audit quality and audit fees. In addition, our findings have implications for policy makers in both the U.K. and the U.S. as one of the first studies that provides large-sample evidence on the impact of partner signature on audit quality. As [DeFond states \(2010, 406\)](#), examining the effect of potential regulatory changes on earnings quality is a “potentially valuable input to policy making.”

Our paper also complements experimental research that examines the impact of accountability on auditor behavior ([DeZoort et al. 2006](#)). Our results are consistent with the argument that requiring an individual audit partner to sign a report improves audit quality by increasing the partner’s accountability and transparency of audit reporting ([PCAOB 2009](#)). However, we also document the costs associated with increased accountability, which has not been explored previously.

The next section provides further institutional background on audit partner signature requirements in the U.K. and U.S., discusses the potential effects of a signature requirement, and develops our research expectations. Section III presents our research method, and Section IV discusses our results. Section V presents additional analyses and robustness tests. The last section includes a summary and a discussion of the paper’s implications and limitations.

II. BACKGROUND AND RESEARCH EXPECTATIONS

Audit Partner Signature Requirement

In 2006, the European Union (E.U.) adopted the Eighth Company Law Directive that calls for E.U. member states to adopt a requirement mandating that the engagement partner sign the audit report (Directive 2006/43/EC, [European Parliament and the Council of the European Union 2006](#)). Article 28 of the Eighth Directive requires the audit report to be signed by at least the statutory auditor.⁵ Prior to the adoption of the Eighth Directive, France, Germany, and Luxembourg already required the engagement partner to sign the audit report ([U.S. Department of the Treasury 2008, VII:20](#)),⁶ and The Netherlands adopted the Eighth Directive for filings made after October 1, 2006

⁵ The term statutory auditor is equivalent to the term engagement partner as defined in the International Standards on Auditing ([PwC Legal 2010](#)).

⁶ Throughout the rest of the paper we cite this report of the U.S. Department of the Treasury as coming from the Advisory Committee on the Auditing Profession, or ACAP.

(Wet toezicht accountantsorganisaties 2006).⁷ The U.K. adopted the Eighth Directive through the Companies Act of 2006, but the requirement for engagement partner signature was not effective until audits of financial statements ending in April 2009 or later (PwC Legal 2010).

The U.S. does not currently have an engagement partner signature requirement, although the ACAP, a committee convened by the U.S. Department of the Treasury, recommended that the PCAOB “undertake a standard-setting initiative to consider mandating the engagement partner’s signature on the auditor’s report” (ACAP 2008, VII:19). The ACAP argued that an engagement signature requirement would enhance partner accountability and improve audit quality. Following the ACAP recommendation, the PCAOB issued a Concept Release in 2009 discussing the arguments for and against implementing a partner signature requirement for U.S. public companies (PCAOB 2009).

The PCAOB has issued a proposed rule that would require the engagement partner to be named in the audit report without being required to personally sign the report (PCAOB 2011a). The Board believes that publicly identifying the engagement partner, by name in the report, would have the same accountability benefits as requiring the partner to sign the audit report (PCAOB 2011a).⁸ Furthermore, it is important to note that although the engagement partner has to sign the audit report in the U.K., copies of the audit report that are filed with the Companies House do not have to be signed (PwC Legal 2010).⁹ Rather, audit reports that are included in the annual report often simply identify the engagement partner by name.¹⁰ Therefore, to the extent that identifiability is at the heart of accountability, the existing signature regime in the U.K. and the proposed identification regime in the U.S. are actually quite similar.

We are interested in the potential effects on auditors and issuers in the U.S. of implementing a partner signature requirement. Moreover, policymakers need the benefit of research before a rule is adopted if research is going to inform rule-making *ex ante*. Although we lack U.S. empirical data on the likely effects of a signature requirement, given the similarities in the cultural and institutional regimes between the U.K. and U.S. (Nobes 1998; Hail and Leuz 2006),¹¹ we test the effects of the

⁷ Certain other countries, including Australia, China, and Taiwan, have also adopted a partner signature requirement. Prior studies that use signature data from those countries generally examine the impact of characteristics of individual audit partners, such as partner tenure (Carey and Simnett 2006), partner industry specialization (Chang and Choy 2010), and partner style on audit quality (Gul et al. 2011). None of these prior studies examine whether instituting the signature requirement has any effect on market-wide changes in audit quality, which is the main interest of regulators in the U.S. We choose to examine companies in the U.K. instead of China, Taiwan, or other countries because: (1) the institutional environment in the U.K. is more similar to the U.S.; (2) the U.K. signature requirement was enacted recently; and (3) the PCAOB specifically mentioned the partner signature requirement in E.U. countries, including the U.K., in various proposal reports.

⁸ The PCAOB’s proposed rule specifically states, “Furthermore, to the extent that association of the partner’s name with the report could increase his or her sense of personal accountability, disclosure would serve that purpose as effectively as would a signature requirement” (PCAOB 2011a, 10).

⁹ Filings with the U.K. Companies House are what the general public can observe, similar to filings via the SEC’s EDGAR system in the U.S.

¹⁰ For a subset of the U.K. companies in our sample, we examine the audit report included in the annual report filed with the U.K.’s Companies House. The signature of the audit partner was absent in approximately 40 percent of the cases; however, in every instance, the partner was named in the report.

¹¹ Hail and Leuz (2006) find that countries with an English legal origin are similar with respect to disclosure regulation and securities regulation. Nobes (1998) argues that both the U.S. and U.K. are characterized by strong equity markets where outside capital is dominant, and Gray et al. (1995) argue that the U.S. and U.K. have similar accounting and reporting traditions that emphasize fair presentation and substance over form.

implementation of a signature requirement in the U.K. to inform, *ex ante*, decision making on this issue in the U.S.¹²

Such *ex ante* research is important since requiring audit partners to personally sign the audit report, or even identifying the name of the audit partner, for every public company in the U.S. might have far-reaching effects on auditors, investors, and preparers (issuers). Notwithstanding the potential consequences of such a rule, little research is available to inform the PCAOB regarding whether to impose such a requirement. The PCAOB has therefore called for research (PCAOB 2009; PCAOB 2011b), and Deloitte, in its comment letter, states that “we strongly recommend that before proceeding with a standard-setting initiative the PCAOB seek empirical evidence about the impact such a change would have on audit quality, including by commissioning academic research” (Deloitte & Touche LLP 2009). Although our research is not commissioned, our paper is an attempt to answer this call by providing research-based evidence for the Board to consider when formulating policy proposals related to engagement partner signature.

Arguments for an Audit Partner Signature Requirement

Proponents of requiring the engagement partner to sign the report argue that doing so will increase accountability (ICAEW 2005; ACAP 2008; PCAOB 2009) and transparency (ACAP 2008; PCAOB 2009). Accountability is being answerable to others for meeting predefined standards of performance (DeZoort et al. 2006). Auditors have always been accountable, as individual auditor performance is subject to both internal and external monitoring. However, an important feature of accountability is identifiability (DeZoort et al. 2006), and the engagement partner’s identity has been observable by only a limited number of parties. Identifying the engagement partner to a much larger audience would provide additional motivation to avoid the negative consequences associated with a perceived audit failure (DeZoort et al. 2006), including criticism and embarrassment involving family, friends, neighbors, and the press. Moreover, the partner’s concern that media linkage of an individual partner to a perceived audit failure would likely decrease the value of the partner’s reputation or human capital should lead the partner to exercise greater care (ICAEW 2005; PCAOB 2008). Therefore, the ability to identify the partner due to the transparency benefits of a signature requirement is likely to have both psychological and economic effects on the partner thereby serving to increase engagement partner accountability.

An increase in partner accountability may change partner behavior in ways that would affect audit quality. First, greater accountability may lead the partner, and the audit team that s(he) directs, to perform more work by extending the procedures performed. Prior behavioral research finds that greater accountability leads auditors to put forth greater effort (Asare et al. 2000; DeZoort et al. 2006). Also, Carcello and Santore (2011) develop an analytical model showing that a partner signature requirement will lead the auditor to gather more audit evidence.

Second, greater partner accountability may change the nature of audit procedures performed. The audit engagement team may gather not only more evidence, but also better and more substantive evidence. For example, Asare et al. (2000) find that greater accountability led auditors

¹² Although there are many similarities between the institutional environment in the U.K. and the U.S., there are also important differences. One notable difference between the U.S. and U.K. is that the U.K. prohibits class action lawsuits and contingent fees and requires the loser to pay the winner’s legal fees (Frost and Pownall 1994), leading to audit litigation risk being much higher in the U.S. (e.g., Seetharaman et al. 2002). However, the signature requirement as implemented in the U.K., and as contemplated in the U.S., is not intended to increase the individual engagement partner’s legal liability. In addition, given the existing heightened legal liability in the U.S., a signature requirement might have a more pronounced effect in the U.S. than in the U.K. In fact, the accounting profession, in their comment letters to the PCAOB on the Board’s signature proposal, point to the liability regime in the U.S. as a major reason for opposing the PCAOB proposal (Deloitte & Touche 2012; Ernst & Young 2012; KPMG 2012; PwC 2012).

to increase the breadth of the work they performed, and it was the change in the nature of audit procedures, not the extent of audit procedures, that led to better auditor performance.

Third, greater partner accountability may lead the partner and the engagement team to exercise greater diligence in performing their work (ICAEW 2005). For example, Messier and Quilliam (1992) find that greater accountability led to an increase in cognitive processing by auditors. Tan and Kao (1999) find that accountability only improved performance when both knowledge and problem-solving ability were high, and both traits characterize partners.

Finally, greater accountability may lead to more conservative auditor reporting. For example, Hoffman and Patton (1997) find that accountability led to more conservative fraud risk judgments. DeZoort et al. (2006) find that, given greater accountability, auditors were less likely to pass on proposed audit adjustments. Deciding whether to pass on a proposed audit adjustment is the type of key decision made by the engagement partner, and it has a direct effect on the amounts reported in the financial statements. The analytical model developed by Carcello and Santore (2011) also predicts that partners will report more conservatively in the presence of a signature requirement.

Arguments against an Audit Partner Signature Requirement

Although arguments in favor of a partner signature requirement implicitly assume that current audit performance is suboptimal, the highly regulated nature of the audit market may mean that the optimum level of audit quality is currently being delivered. Opponents of a partner signature requirement argue that partners are already subject to substantial accountability mechanisms, and that these existing accountability mechanisms are sufficient to ensure optimal auditor performance (Ernst & Young 2009).¹³ For example, partners are subject to internal firm quality-control inspections, PCAOB inspections, potential SEC and PCAOB enforcement actions, and civil litigation. Moreover, the audit committee knows the identity of the engagement partner and, under federal securities law, the audit committee is responsible for overseeing the external audit function (McGladrey & Pullen 2009).

If the current level of audit quality is optimal, then requiring an engagement partner signature may actually cause auditor performance to decline. For example, audits are performed by a group (Ernst & Young 2009; New York State Society of CPAs [NYSSCPA] 2009)—the audit engagement team—and a signature requirement, by focusing particular attention on one person, may reduce the sense of accountability and responsibility felt by other members of the engagement team (PCAOB 2008; Auditing Standards Committee 2009).

Even if a partner signature requirement is benign with respect to affecting auditor performance, opponents of the signature requirement argue that audit fees will increase. To the extent that fees increase without a commensurate increase in auditor performance, the costs of implementing a signature requirement would clearly exceed the benefits. Audit costs could increase as partners respond conservatively to their increased accountability by increasing audit hours and audit fees (PCAOB 2008; PwC 2009), consistent with Carcello and Santore's (2011) analytical model. This increased audit effort may be unnecessary and could result in audit inefficiency (DeZoort et al. 2006). Finally, although any move to require the partner to sign the audit report could be coupled with a safe harbor that eliminates any incremental partner liability,¹⁴ to the extent that such legal

¹³ However, inspections of audit firms performed by the PCAOB continue to indicate that there is significant room for improvement in auditor performance (PCAOB 2011a). In fact, PCAOB inspection findings of problem areas have been increasing in recent years (Harris 2011; Franzel 2012).

¹⁴ The legislation implementing the partner signature requirement in the U.K. provides a safe harbor protecting the partner from any incremental liability (ICAEW 2009).

protection is not forthcoming (Auditing Standards Committee 2009; PricewaterhouseCoopers 2009), any tendency for partners to practice “defensive auditing” is likely to be exacerbated.

Hypotheses

If a partner signature requirement leads partners and engagement teams to gather more and better evidence with greater care, then errors in financial statements are more likely to be detected. Errors in financial statements are often introduced through the use of the accrual process (Richardson et al. 2006; Ettredge et al. 2010), and earnings thresholds are sometimes met through the abuse of the accrual process. Therefore, if a partner signature requirement improves engagement performance, then we expect extreme earnings management to decline, which should result in a decrease in both abnormal accruals and the propensity to meet earnings thresholds. Also, if partners are more conservative, then even less extreme measures of earnings management may be constrained, again resulting in a decline in abnormal accruals and the propensity to meet earnings thresholds. When earnings management decreases, we expect the informativeness of earnings to increase. In addition, if partners report more conservatively due to greater accountability, then the implementation of a signature requirement may make it more likely that auditors would issue a qualified opinion¹⁵ (DeFond et al. 1999). These arguments lead to our first hypothesis (expressed in alternative form):

H1: Audit quality will increase in the U.K. (proxied by abnormal accruals, the propensity to report a small earnings increase, the informativeness of earnings, and the incidence of qualified audit opinions) after engagement partners are required to sign the audit report.

Both proponents and opponents of a partner signature requirement appear to agree that auditors will gather more audit evidence. Proponents believe that this additional audit evidence will improve auditor performance. For example, prior research finds that higher audit fees result from auditors working more hours (Bell et al. 2001), and that additional audit effort serves to constrain abnormal accruals and the use of the accruals process to meet an earnings benchmark (Caramanis and Lennox 2008). Opponents believe that additional audit evidence is not needed, and that auditor performance will not improve (CalCPA 2011). However, in either case it is reasonable to expect that audit hours will increase, leading to increased audit fees, as reflected in our second hypothesis (expressed in alternative form):

H2: Audit fees will increase in the U.K. after engagement partners are required to sign the audit report.

III. SAMPLE SELECTION AND EMPIRICAL MODELS

Sample Selection

We collect data for United Kingdom companies listed on the London Stock Exchange (LSE) from DataStream, which contains financial information for most listed European companies. We begin with 7,881 firm-year observations covered in DataStream from 2008 to 2010. To obtain the data for the abnormal accruals analysis, we delete 4,573 observations without necessary data to calculate abnormal accruals, and 699 observations with missing financial information for control

¹⁵ A qualified audit opinion is issued in the U.K. due to scope limitations or due to nonpervasive departures from GAAP. Unlike the U.S., where qualified audit opinions for publicly traded companies are extremely rare, prior research indicates that approximately 6 percent of U.K.-listed companies receive a qualified opinion (Ireland 2003).

variables. Because we employ a balanced panel design by comparing U.K. firms in the last year before the implementation of the signature requirement to the same firms in the first year with the signature requirement, we require firms to exist both one year prior to the signature requirement and in the first year with the signature requirement.¹⁶ These procedures result in 1,696 firm-year observations for the abnormal accrual analysis. Table 1 summarizes the sample selection process.

As shown in Table 1, we use a similar screening process for the other audit quality and audit fee analyses. Specifically, for our small earnings increase analysis, we restrict our sample to firms with earnings data in the current and prior year, which yields 3,780 observations. Requiring additional financial data to compute control variables and restricting observations to those existing in both one year prior to and the first year with the signature requirement results in a final sample of 2,314 firm-year observations for the small earnings increase analysis. For our earnings informativeness analysis, we delete observations without return data or other necessary financial data and require observations to exist both one year prior to and the first year with the signature requirement. This produces a sample of 2,336 firm-year observations. For the qualified audit opinion analysis, we restrict the sample to firms with audit opinion data, other necessary financial data, and that continue to operate both one year prior to and the first year with the signature requirement, which results in a final sample of 1,452 firm-year observations. Finally, for the audit fee analysis, because the audit fee data in DataStream includes both audit and nonaudit fees, we obtain audit fee data from the London Stock Exchange and merge it with DataStream.¹⁷ We exclude observations without necessary financial data, and require firms to exist both one year prior to and the first year with the signature requirement, yielding a final sample of 1,878 firm-year observations.

Variable Definitions

Because audit quality is unobservable, we adopt three commonly used proxies for audit quality: abnormal accruals (*ABS_ACC*), the likelihood of firms reporting a small earnings increase (*INCREASE*), and earnings informativeness (*ERC*). In addition, we examine the propensity of the auditor to issue a qualified audit report, which is a direct outcome of the audit process. Following prior studies (Dechow et al. 1995; Kothari et al. 2005; Reichelt and Wang 2010), we use the modified Jones (1991) model to estimate cross-sectional performance-matched abnormal accruals (*ABS_ACC*).¹⁸ The second measure is an indicator variable designed to capture the likelihood that firms will report a small earnings increase (*INCREASE*). This variable is coded 1 if the difference between a firm's income before extraordinary items in years t and $t-1$ (scaled by the market value at the end of year $t-1$) is greater than or equal to 0.00, but smaller than 0.02, and it is coded 0 otherwise. The third measure is earnings informativeness (*ERC*), which has been widely used in prior research as a market measure of audit quality (Teoh and Wong 1993; Balsam et al. 2003). The last audit-quality measure is the auditor's propensity to issue a qualified audit opinion (*QUA_AOP*), which equals 1 if the auditor issues a qualified opinion, and 0 otherwise. Audit quality is higher if clients: (1) have lower abnormal accruals, (2) are less likely to report a small earnings increase, (3) have a higher *ERC*, and (4) are more likely to issue a qualified opinion. In the audit fee analysis, our dependent variable is the natural logarithm of total audit fees (*LNAFEE*). Our test variable is *SIGNATURE*, which is an indicator variable coded 1 if the fiscal year is the first year the signature requirement is effective, and 0 if the fiscal year is the last year before the signature requirement.

¹⁶ Because the signature requirement begins for firms with a fiscal year-ending on or after April 2009, the last year before the signature requirement could be either 2008 or 2009, depending on the firm's fiscal year-end.

¹⁷ We thank Marek Grabowski for his help in obtaining access to U.K. audit fee data.

¹⁸ We do not use the Dechow and Dichev (2002) cash flow model to calculate abnormal discretionary accruals because that model requires data for the past seven years, which would involve using data in the pre-signature period to calculate abnormal accruals in the post-signature period.

TABLE 1
Sample Selection

Panel A: Sample for Abnormal Accrual Analysis

U.K. firms listed on London Stock Exchange from 2008 to 2010	7,881
Delete:	
Firms without necessary financial data to compute abnormal accruals	4,573
Firms without necessary financial data to compute control variables	699
Firms with three FS dates between 2008 and 2010 (FS date not immediately before and after the signature requirement is dropped)	656
Firms that do not exist both one year before and the first year with the signature requirement	257
Final Sample in Abnormal Accrual Analysis	<u>1,696</u>

Panel B: Sample for Small Earnings Increase Analysis

U.K. firms listed on London Stock Exchange from 2008 to 2010	7,881
Delete:	
Firms with missing prior or current years' earnings data	4,101
Firms without necessary financial data to compute control variables	531
Firms with three FS dates between 2008 and 2010 (FS date not immediately before and after the signature requirement is dropped)	697
Firms that do not exist both one year before and the first year with the signature requirement	238
Final Sample in Small Earnings Increase Analysis	<u>2,314</u>

Panel C: Sample for Earnings Informativeness Analysis

U.K. firms listed on London Stock Exchange from 2008 to 2010	7,881
Delete:	
Firms without stock return data	2,671
Firms without necessary financial data to compute control variables	1,921
Firms with three FS dates between 2008 and 2010 (FS date not immediately before and after the signature requirement is dropped)	537
Firms that do not exist both one year before and the first year with the signature requirement	416
Final Sample in Earnings Informativeness Analysis	<u>2,336</u>

Panel D: Sample for Qualified Audit Opinion Analysis

U.K. firms listed on London Stock Exchange from 2008 to 2010	7,881
Delete:	
Firms without audit opinion data	4,733
Firms without necessary financial data to compute control variables	862
Firms with three FS dates between 2008 and 2010 (FS date not immediately before and after the signature requirement is dropped)	515
Firms that do not exist both one year before and the first year with the signature requirement	319
Final Sample in Audit Opinion Analysis	<u>1,452</u>

(continued on next page)

TABLE 1 (continued)

Panel E: Sample for Audit Fee Analysis

U.K. firms listed on London Stock Exchange from 2008 to 2010	7,881
Delete:	
Firms without audit fee data	4,054
Firms without necessary financial data to compute control variables	1,007
Firms with three FS dates between 2008 and 2010 (FS date not immediately before and after the signature requirement is dropped)	614
Firms that do not exist both one year before and the first year with the signature requirement	328
Final Sample in Audit Fee Analysis	1,878

Empirical Models***Abnormal Accruals Analysis***

We estimate the following model to examine the relation between abnormal accruals and the audit partner signature requirement:

$$\begin{aligned}
 ABS_ACC_t = & b_0 + b_1SIGNATURE + b_2SIZE_t + b_3ROA_t + b_4LEVERAGE_t + b_5LOSS_t \\
 & + b_6MB_t + b_7LCACCR_t + b_8CFO_t + b_9VOLATILITY_t + b_{10}LITIGATE_t \\
 & + b_{11}AUDITOR_t + Industry Dummies.
 \end{aligned} \quad (1)$$

We use abnormal accruals generated by the modified Jones (1991) approach (Dechow et al. 1995).¹⁹ Following Francis et al. (2008), we estimate the cross-sectional regression model for each two-digit industry group with at least 15 firms in the current year. Abnormal accruals from this model are then differenced with abnormal accruals of a firm with the same two-digit industry code and with the closest return on assets in the current year (Kothari et al. 2005). The absolute value of the resulting value is our dependent variable in Equation (1), *ABS_ACC*. We expect *SIGNATURE* to be negatively associated with *ABS_ACC*.

Following prior research (Becker et al. 1998; Frankel et al. 2002; Ashbaugh et al. 2003), we control for firm size (*SIZE*), profitability (*ROA* and *LOSS*), leverage (*LEVERAGE*), market-to-book ratio (*MB*), last year's total current accruals (*LCACCR*), cash flow from operations (*CFO*), earnings volatility (*VOLATILITY*), whether the firm is in a litigious industry (*LITIGATE*), and whether the auditor is a Big 6 auditor (the Big 4 plus Grant Thornton and BDO Seidman). Table 2 summarizes each variable's definition.

Small Earnings Increase Analysis

Our second proxy for audit quality is the likelihood of a firm reporting a small earnings increase (Frankel et al. 2002; Ashbaugh et al. 2003). We use the following logistic regression model to test the association between the partner signature requirement and a small earnings increase:

$$\begin{aligned}
 INCREASE_t = & b_0 + b_1SIGNATURE + b_2SIZE_t + b_3ROA_t + b_4LEVERAGE_t + b_5LOSS_t \\
 & + b_6MB_t + b_7LCACCR_t + b_8CFO_t + b_9VOLATILITY_t + b_{10}LITIGATE_t \\
 & + b_{11}AUDITOR_t + Industry Dummies.
 \end{aligned} \quad (2)$$

INCREASE is an indicator variable coded 1 if the difference between a firm's income before

¹⁹ Importantly, Francis and Michas (2011) find that abnormal accruals are negatively correlated with audit quality when audit quality is measured using restatements.

extraordinary items in years t and $t-1$ (scaled by the market value at the end of year $t-1$) falls in the interval $[0.00, 0.02]$, and 0 otherwise. *SIGNATURE* is expected to be negatively associated with *INCREASE*. Control variables are the same as in Equation (1) and are summarized in Table 2.

Earnings Informativeness Analysis

Our third proxy for audit quality is earnings informativeness, measured using the ERC. Following prior research (Fan and Wong 2002; Wang 2006), we use the following regression to test the association between the partner signature requirement and the ERC:

$$\begin{aligned} RET_t = & b_0 + b_1ROA_t + b_2SIGNATURE + b_3SIGNATURE \times ROA_t + b_4SIZE_t \\ & + b_5SIZE_t \times ROA_t + b_6LEVERAGE_t + b_7LEVERAGE_t \times ROA_t + b_8LOSS_t \\ & + b_9LOSS_t \times ROA_t + b_{10}MB_t + b_{11}MB_t \times ROA_t + b_{12}VOLATILITY_t \\ & + b_{13}VOLATILITY_t \times ROA_t + b_{14}LITIGATE_t + b_{15}LITIGATE_t \times ROA_t \\ & + b_{16}AUDITOR_t + b_{17}AUDITOR_t \times ROA_t + Industry Dummies \end{aligned} \quad (3)$$

where *RET* is the 12-month cumulative stock return for year t , ending three months after the fiscal year-end of year t .²⁰ Our variable of interest in the ERC analysis is *SIGNATURE* \times *ROA*. Because we expect that the association between earnings and stock returns became stronger after the implementation of the signature requirement, b_3 is expected to be positive.

Audit Opinion Analysis

Our last proxy of audit quality is the propensity of an auditor to issue a qualified audit opinion for year t (Craswell et al. 2002). We adopt the following logistic regression model to test the association between the partner signature requirement and the likelihood of a qualified audit opinion:

$$\begin{aligned} QUA_AOP_t = & b_0 + b_1SIGNATURE + b_2SIZE_t + b_3ROA_t + b_4LEVERAGE_t + b_5LOSS_t \\ & + b_6MB_t + b_7CFO_t + b_8VOLATILITY_t + b_9LITIGATE_t + b_{10}AUDITOR_t \\ & + b_{11}RECEIVABLE_t + b_{12}INVENTORY_t + b_{13}FOREIGN_t + b_{14}BUSY_t \\ & + Industry Dummies. \end{aligned} \quad (4)$$

QUA_AOP is an indicator variable coded 1 if the firm receives a qualified audit opinion for year t , and 0 otherwise. *SIGNATURE* is expected to be positively associated with *QUA_AOP*. In addition to the control variables included in Equation (1), we control for receivables and inventory intensity, foreign operations, and auditor busy season, where these variables are defined in Table 2.

Audit Fee Analysis

Our second hypothesis examines whether audit fees increase after the implementation of the partner signature requirement. Following a stream of audit fee studies (e.g., Simunic 1980; Hay et al. 2006), we control for various determinants of audit fees using the following regression model:

²⁰ When we use abnormal returns rather than the raw 12-month cumulative stock return (*RET* from Equation (3)), the coefficient on *SIGNATURE* \times *ROA* remains positive and significant (coefficient = 0.176 and p-value < 0.05).

$$\begin{aligned}
 LNAFEE_t = & b_0 + b_1 SIGNATURE + b_2 SIZE_t + b_3 ROA_t + b_4 LEVERAGE_t + b_5 LOSS_t \\
 & + b_6 MB_t + b_7 CFO_t + b_8 VOLATILITY_t + b_9 LITIGATE_t + b_{10} AUDITOR_t \\
 & + b_{11} RECEIVABLE_t + b_{12} INVENTORY_t + b_{13} FOREIGN_t + b_{14} BUSY_t \\
 & + Industry\ Dummies.
 \end{aligned}
 \tag{5}$$

LNAFEE is the natural logarithm of audit fees for year *t*. We expect *SIGNATURE* to be positively associated with *LNAFEE* because we argue that the partner signature requirement will increase audit effort, leading to higher audit fees. Control variables are the same as in Equation (4). In each model, we control for industry fixed effects based on two-digit industry code and adjust for firm and year clustering effects.

IV. EMPIRICAL RESULTS

Univariate Results

Table 2, Panel A, reports descriptive statistics on the audit-quality measures for U.K. firms in the pre-signature requirement period (Pre_Sig.) and the post-signature requirement period (Post_Sig.). The first column reports the results for abnormal accruals. The absolute value of mean abnormal accruals is significantly smaller in the post-signature requirement period (0.087 versus 0.117), providing univariate evidence that firms have lower abnormal accruals following the implementation of the partner signature requirement. Results for the control variables show that in the post-signature requirement period, firms on average are smaller, are less likely to report losses, and have higher market-to-book values. Furthermore, they have lower prior-year's current accruals. Because we compare the same firms in the pre- and post-signature periods, their litigious industry status is the same in the two periods.

The second column reports the results for the likelihood that a firm reports a small earnings increase in the pre-signature period compared to that in the post-signature period. The likelihood of a small earnings increase is significantly lower at 9.2 percent in the post-signature period versus 19.0 percent in the pre-signature period, consistent with H1. The third column compares the variables in the ERC analysis. Compared to the pre-signature period, firms in the post-signature period have higher returns, are smaller, and have higher market-to-book ratios.²¹ The last column reports the univariate results for auditors' propensity to issue a qualified opinion in the pre- and post-signature periods. Auditors are significantly more likely to issue a qualified opinion in the post-signature period than in the pre-signature period (6.5 percent versus 3.3 percent), again providing evidence consistent with H1 that audit quality is higher after the implementation of the partner signature requirement.

Table 2, Panel B, reports descriptive statistics for our second hypothesis that examines whether U.K. auditors charge higher audit fees after the implementation of the signature requirement. Pre-logged audit fees are very similar in the post-signature period compared to that in the pre-signature period (\$475.9 versus \$477.0, in thousands). The logged audit fees are also not different in the two periods. Thus, we do not find univariate evidence that auditors charged higher audit fees following the implementation of the partner signature requirement. However, because the univariate test does not control for other factors that impact audit fees, we use regression analysis in the next section for a more complete analysis of the audit fee results. Finally, for control variables, firms have higher ROA and higher market-to-book values after the effective date of the signature requirement than before.

²¹ Because we are interested in the association between stock returns and the interaction between *SIGNATURE* and earnings (*ROA*), we discuss the regression results reported in Table 3 in the next section.

TABLE 2
Univariate Statistics
(mean values)

Panel A: Audit Quality Measures

	Abnormal Accruals <i>ABS_ACC</i>			Small Earnings Increase <i>INCREASE</i>			Earnings Informativeness <i>RET</i>			Qualified Audit Opinions <i>QUA_AOP</i>		
	Pre_Sig. (n = 848)	Post_Sig. (n = 848)	t-stat.	Pre_Sig. (n = 1157)	Post_Sig. (n = 1157)	t-stat.	Pre_Sig. (n = 1168)	Post_Sig. (n = 1168)	t-stat.	Pre_Sig. (n = 726)	Post_Sig. (n = 726)	t-stat.
<i>ABS_ACC</i>	0.117	0.087	-5.55***	0.190	0.092	-6.88***	-0.479	0.421	36.04***	0.033	0.065	2.80***
<i>INCREASE</i>												
<i>RET</i>												
<i>QUA_AOP</i>												
<i>SIZE</i>	12.091	11.872	-1.94**	12.031	11.842	-1.86*	12.026	11.838	-1.86**	12.115	11.947	-1.29
<i>ROA</i>	-0.057	-0.037	1.43	-0.072	-0.051	1.52	-0.073	-0.051	1.52	-0.048	-0.039	0.61*
<i>LEVERAGE</i>	0.160	0.153	-0.80	0.141	0.134	-0.98	0.473	0.463	-0.73	0.138	0.129	-0.89
<i>LOSS</i>	0.387	0.346	-1.76*	0.375	0.347	-1.43	0.376	0.348	-1.42	0.338	0.321	-0.67
<i>MB</i>	1.168	1.583	3.33***	1.157	1.550	3.97***	1.160	1.551	3.97***	1.170	1.535	2.94***
<i>LCACCR</i>	-0.003	-0.057	-4.86***	-0.005	-0.073	-4.74***						
<i>CFO</i>	0.034	0.047	1.58	0.016	0.022	0.76				0.023	0.026	0.33
<i>VOLATILITY</i>	0.229	0.215	-0.55	0.220	0.219	-0.05	0.219	0.218	-0.05	0.214	0.207	-0.23
<i>LITIGATE</i>	0.245	0.245	0.00	0.184	0.184	0.00	0.183	0.183	0.00	0.189	0.189	0.00
<i>AUDITOR</i>	0.747	0.742	-0.22	0.735	0.728	-0.37	0.734	0.730	-0.23	0.767	0.765	-0.12
<i>RECEIVABLE</i>										0.147	0.143	-0.44
<i>INVENTORY</i>										0.079	0.078	-0.16
<i>FOREIGN</i>										0.456	0.449	-0.26
<i>BUSY</i>										0.642	0.642	0.00

(continued on next page)

TABLE 2 (continued)

Panel B: Audit Fees

	<i>LNAFEE</i>	
	Pre_Sig. (n = 939)	Post_Sig. (n = 939)
<i>LNAFEE</i>	11.487	11.508
<i>SIZE</i>	12.031	11.854
<i>ROA</i>	-0.065	-0.040
<i>LEVERAGE</i>	0.140	0.131
<i>LOSS</i>	0.363	0.336
<i>MB</i>	1.193	1.566
<i>CFO</i>	0.018	0.027
<i>VOLATILITY</i>	0.216	0.213
<i>LITIGATE</i>	0.201	0.201
<i>AUDITOR</i>	0.758	0.757
<i>RECENVABLE</i>	0.154	0.147
<i>INVENTORY</i>	0.085	0.083
<i>FOREIGN</i>	0.469	0.468
<i>BUSY</i>	0.653	0.653
		t-stat.
		0.28
		-1.55
		1.69*
		-1.11
		-1.26
		3.39***
		1.00
		-0.09
		0.00
		-0.05
		-0.99
		-0.20
		-0.05
		0.00

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively, all two-tailed.

Variable Definitions:

SIGNATURE = 1 if the fiscal year is the first year with the signature requirement, and 0 if the fiscal year is the last year before the signature requirement;

ABS_ACC = performance-matched absolute abnormal accruals at the end of year *t*;

INCREASE = 1 if the earnings increase from year *t*-1 to year *t* is greater than or equal to 0 but less than 2 cents, and 0 otherwise;

RET = 12-month cumulative raw returns at year *t* ending three months after the fiscal year-end;

QUA_AOP = 1 if the auditor issued a qualified audit opinion for year *t*, and 0 otherwise;

LNAFEE = natural log of total audit fees in year *t*;

SIZE = natural log of total assets at the end of year *t*;

ROA = earnings before extraordinary items in year *t* divided by total assets at the end of year *t*;

LEVERAGE = total debt at the end of year *t* divided by total assets at the end of year *t*;

LOSS = 1 if net income in year *t* is less than 0, and 0 otherwise;

MB = market value at the end of year *t* divided by book value at the end of year *t*;

LCACCR = prior year's total current accruals (net income before extraordinary items + depreciation and amortization - operating cash flows) divided by lagged total assets;

CFO = cash flow from operations divided by total assets at the end of year *t*;

(continued on next page)

TABLE 2 (continued)

<i>VOLATILITY</i> = standard deviation of annual sales over the prior seven years;
<i>LITIGATE</i> = 1 if the firm's main operations are in a high-litigation industry (biotechnology, computers, electronics, and retail industries [based on Francis et al. 1994]), and 0 otherwise;
<i>AUDITOR</i> = 1 if the firm is audited by a Big 6 firm in year <i>t</i> , and 0 otherwise;
<i>RECEIVABLE</i> = total accounts receivables at the end of year <i>t</i> divided by total assets at the end of year <i>t</i> ;
<i>INVENTORY</i> = total inventories at the end of year <i>t</i> divided by total assets at the end of year <i>t</i> ;
<i>FOREIGN</i> = 1 if the firm has foreign transactions in year <i>t</i> , and 0 otherwise; and
<i>BUSY</i> = 1 if the firm's fiscal year-end in year <i>t</i> is between December and March.

Regression Results

Abnormal Accruals

The first column in Panel A of Table 3 reports the regression results for the association between the partner signature requirement and abnormal accruals. *SIGNATURE* is significantly negative (coefficient = -0.033 , $p < 0.01$), which suggests that firms have lower abnormal accruals following the implementation of the partner signature requirement, providing support for H1. Economically, firms' absolute abnormal accruals are, on average, 0.033 smaller in the post-signature period than in the pre-signature period. This is economically significant because the mean abnormal accruals in our sample is only 0.102. Results for control variables show that large firms and firms with higher prior-year current accruals have smaller abnormal accruals, while firms with higher earnings volatility have larger abnormal accruals.

To examine signed accruals we next divide the accrual sample into two groups, firms with positive abnormal accruals and firms with negative abnormal accruals. The untabulated results indicate that compared to the pre-signature period, firms in the post-signature period have smaller positive abnormal accruals (coefficient = -0.048 , $p < 0.01$) and less negative abnormal accruals (coefficient = 0.027 , $p < 0.05$), suggesting that firms have better accrual quality for both positive and negative accruals when the signature requirement is in effect.

Small Earnings Increase

The second column in Panel A of Table 3 presents regression results for the likelihood of firms reporting a small earnings increase in the post-signature period compared to that in the pre-signature period. Consistent with H1, *SIGNATURE* is significantly negative (coefficient = -0.988 , $p < 0.01$). In terms of economic significance, firms are 12 percent less likely to report a small earnings increase in the post-signature period.²² The results also suggest that large firms and firms with higher market-to-book values are more likely to report a small earnings increase, while loss firms and firms with higher leverage are less likely to report a small earnings increase.

Earnings Response Coefficient

Our third audit quality test takes a market perspective by examining whether the informativeness of earnings increases after the implementation of the partner signature requirement. The third column in Panel A of Table 3 shows that the earnings response coefficient on *SIGNATURE*, which is the interaction between *SIGNATURE* and *ROA*, is positive with an estimated coefficient of 0.151 and marginally significant ($p < 0.10$), suggesting the informativeness of earnings increases after the partner signature requirement, again supporting H1. Results for the control variables show that firms in litigious industries have higher ERC, while loss firms and firms with higher leverage have lower ERC.

Qualified Audit Opinions

Our last audit-quality measure is audit opinions, an outcome of audit process. The fourth column in Panel A of Table 3 reports the results for the propensity to issue a qualified audit opinion in the post-signature period compared to that in the pre-signature period. The coefficient of 0.842 on *SIGNATURE* is significantly positive ($p < 0.01$), suggesting auditors are more likely to issue a qualified audit opinion in the first year with the signature requirement than the last year before the signature requirement. In terms of economic significance, firms are 3.9 percent more likely to

²² We estimate economic significance by multiplying the *SIGNATURE* coefficient by: (probability of a small earnings increase) * (1 - probability of a small earnings increase). The mean probability of a small earnings increase in our overall sample is 14.1 percent, so the economic significance is computed as: $(-0.988) * (0.141) * (1 - 0.141) = -0.120$.

TABLE 3

Regression Results on the Association between U.K. Signature Requirement and Audit Quality and Audit Fees

Panel A: Audit Quality Measures

	Abnormal Accruals <i>DV = ABS_ACC</i>			Small Earnings Increase <i>DV = INCREASE</i>			Earnings Informativeness <i>DV = RET</i>			Qualified Audit Opinions <i>DV = QUA_AOP</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square
Intercept		0.193	7.71***		-3.154	29.01***		-0.533	-5.24***		-0.156	0.02
<i>SIGNATURE</i>	-	-0.033	-6.18***	-	-0.988	49.54***	?	0.899	36.48***	+	0.842	9.27***
<i>SIZE</i>	-	-0.005	-3.12***	-	0.134	14.38***	?	0.013	2.08**	-	-0.262	8.79***
<i>ROA</i>	-	-0.019	-0.92	-	0.191	0.11	+	0.680	1.35*	-	0.270	0.46
<i>LEVERAGE</i>	+	-0.014	-0.75	+	-1.461	10.01***	?	-0.087	-1.66*	+	0.400	0.38
<i>LOSS</i>	+	0.006	0.84	+	-1.104	26.27***	?	-0.049	-1.22	+	0.697	3.86**
<i>MB</i>	+	0.001	0.53	+	0.092	8.55***	?	0.024	3.28***	-	-0.058	2.24*
<i>LCACCR</i>	-	-0.033	-1.99**	-	0.157	0.22						
<i>CFO</i>	-	-0.029	-0.81	-	0.354	0.22				-	-0.948	1.74*
<i>VOLATILITY</i>	+	0.024	3.14***	+	-0.135	0.32	?	0.020	0.59	+	-0.034	0.04
<i>LITIGATE</i>	-	-0.002	-0.19	-	-0.101	0.07	?	0.096	1.33	+	-0.080	0.02
<i>AUDITOR</i>	-	-0.002	-0.21	-	0.019	0.01	?	-0.003	-0.09	+	-0.775	6.84***
<i>RECEIVABLE INVENTORY</i>										?	-0.158	0.03
<i>FOREIGN BUSY</i>										?	0.438	0.16
<i>SIGNATURE</i> × <i>ROA</i>										+	0.758	5.08**
<i>SIZE</i> × <i>ROA</i>										?	-0.562	3.39*
<i>LEVERAGE</i> × <i>ROA</i>												
<i>LOSS</i> × <i>ROA</i>												
<i>MB</i> × <i>ROA</i>												
<i>VOLATILITY</i> × <i>ROA</i>												
<i>LITIGATE</i> × <i>ROA</i>												
<i>AUDITOR</i> × <i>ROA</i>												
Industry Dummies												
<i>n</i>	Included	1696		Included	2314		Included	2336		Included	1452	

(continued on next page)

TABLE 3 (continued)

	Abnormal Accruals <i>DV = ABS_ACC</i>		Small Earnings Increase <i>DV = INCREASE</i>		Earnings Informativeness <i>DV = RET</i>		Qualified Audit Opinions <i>DV = QUA_AOP</i>	
	+/-	Coeff. t-stat.	+/-	Coeff. Chi-Square	+/-	Coeff. t-stat.	+/-	Coeff. Chi-Square
<i>SIGNATURE</i> n		848		1157		1168		726
F-value		10.06				47.11		
Likelihood Ratio				296.90				151.35
Adj. R ²		0.12				0.38		
Pseudo R ²				0.22				0.31

Panel B: Audit Fees

	<i>DV = LNAFEE</i>	
	+/-	Coeff. t-stat.
Intercept		38.45***
<i>SIGNATURE</i>		4.30***
<i>SIZE</i>	+	66.71***
<i>ROA</i>	+	-2.83***
<i>LEVERAGE</i>	-	1.44*
<i>LOSS</i>	+	1.92*
<i>MB</i>	+	2.24**
<i>CFO</i>	+	-0.40
<i>VOLATILITY</i>	+	1.44*
<i>LITIGATE</i>	+	0.41
<i>AUDITOR</i>	+	2.41***
<i>RECEIVABLE</i>	+	4.94***

(continued on next page)

TABLE 3 (continued)

<i>DV = LNAFEE</i>			
	<i>+/-</i>	<i>Coeff.</i>	<i>t-stat.</i>
<i>INVENTORY</i>	<i>+</i>	-0.125	-0.98
<i>FOREIGN</i>	<i>+</i>	0.231	6.77***
<i>BUSY</i>	<i>+</i>	0.176	5.67***
Industry Dummies		Included	
<i>n</i>		1878	
<i>SIGNATURE</i> <i>n</i>		939	
<i>F-value</i>		383.27	
<i>Adj. R²</i>		0.85	

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively.
The t-statistics are adjusted for firm-year clustering effects. p-values are one-tailed for signed expectations and two-tailed for unsigned expectations.
Please see Table 2 for variable definitions.

receive a qualified audit opinion in the post-signature period. In summary, H1 is supported using each of the four audit-quality measures.

Audit Fees

Table 3, Panel B, reports regression results comparing audit fees in the pre-signature period with those in the post-signature period. The coefficient of 0.124 on *SIGNATURE* is significantly positive ($p < 0.01$), suggesting that clients pay significantly higher audit fees in the post-signature requirement period after controlling for client and auditor characteristics that could impact audit fees, which is consistent with H2.²³ Economically, after controlling for other determinants of audit fees, clients pay 13.2 percent higher audit fees after the implementation of the partner signature requirement.²⁴

As for control variables, consistent with prior audit fee studies, large firms, firms with higher leverage and lower ROA, firms reporting a loss, and firms having a higher market-to-book ratio, larger earnings volatility, more receivables, and the existence of foreign transactions pay higher audit fees. Furthermore, audit fees are higher for firms employing Big 6 auditors, and for firms with busy season fiscal year-ends.

In summary, our various audit quality tests support our expectation that audit quality increases after the audit partner signature requirement in the U.K., but, at the same time, audit fees also increase. Since we conduct a time-series study, our results could be attributable to other confounding factors that occurred around the same time as the signature requirement. In an attempt to address this issue, the next section compares audit quality and audit fees of U.K. firms to U.S. firms that currently do not have a partner signature requirement and firms in other European countries that adopted the auditor signature requirement earlier.

Analyses with Control Groups

Time-series analyses may be subject to a correlated omitted variable problem. As discussed in Section I of the paper, we consider whether other regulations that are implemented in the U.K. around the same time as the partner signature requirement could impact audit quality and conclude that our results are less likely to be driven by those U.K.-specific contemporaneous changes. However, our results could be influenced by other events that occurred *globally* around the same time as the implementation of the audit partner signature requirement. For example, the global economic recession, which occurred in 2008 and 2009, could be associated with our audit-quality measures. To alleviate omitted variable concerns, we conduct cross-sectional analyses by comparing U.K. firms that are listed on the LSE with two control groups: (1) U.S. firms that currently do not have a partner signature requirement and (2) firms in four E.U. countries that had a partner signature requirement in place since 2007, which we label as Four-country firms. To the extent that the U.S. and the U.K. have similar cultural and institutional environments, and U.S. firms are also impacted by global events, such as the economic recession, an analysis of U.S. firms could provide some additional insights into our main inferences from the U.K. sample. Also, to the extent that a European-wide shock is driving our results, comparing U.K. firms with Four-country firms help address this possibility.

²³ Because auditors are more likely to issue a qualified opinion in the post-signature period, and a qualified audit opinion is likely to be associated with increased audit fees, we add a dummy variable representing the likelihood of a qualified auditor opinion to the audit fee model. As expected, the likelihood of a qualified auditor opinion is positively associated with audit fees ($p < 0.01$), and the coefficient on *SIGNATURE* continues to be positive and significant (coefficient = 0.137 and $p < 0.05$).

²⁴ As the dependent variable is the natural log of the audit fee, the fee increase is calculated as the percentage change in the dependent variable from the pre-signature period to the signature period, which is defined as $e^z - 1$, where z is the coefficient on the independent variable.

U.S. Firms

Our first control group is U.S. firms that are traded on U.S. domestic stock exchanges. We obtain financial data for U.S. firms from Compustat and auditor data from Audit Analytics. We match each U.K. firm in our sample with a U.S. firm based on year, two-digit industry code, total assets, and profitability. Specifically, within year and two-digit industry code, we first consider all matched U.S. firms with total assets within 20 percent of the U.K. firm, and then identify the matched firm as the one with the closest ROA.²⁵

Because U.S. firms are not subject to a partner signature requirement, we expect to find audit quality improves more and audit fees increase more for U.K. firms compared to U.S. firms from the pre- to post-signature period. For the abnormal accrual, small earnings increase, and audit fee analyses, we interact a U.K. indicator variable (*UK*) with the post-signature indicator variable (*SIGNATURE*) and expect this variable to be significantly negative in the accrual and small earnings increase analyses, and significantly positive in the audit fee analyses. For the ERC analysis, we interact the *UK* indicator with the *SIGNATURE* and *ROA* variables, expecting the three-way interaction to be significantly positive.²⁶

The results in Table 4 show that consistent with our expectations, the interaction between *UK* and *SIGNATURE* is significantly negative for the abnormal accrual and small earnings increase analyses ($p < 0.01$ and 0.05 , respectively), and the coefficient on $UK \times SIGNATURE \times ROA$ is significantly positive ($p < 0.05$), suggesting that compared to U.S. firms, U.K. firms have a larger decrease in abnormal accruals, a larger reduction in the likelihood of reporting a small earnings increase, and a larger increase in the ERC from the pre- to post-signature period.²⁷ For the audit fee analysis, the interaction between *UK* and *SIGNATURE* is significantly positive ($p < 0.01$), which suggests that compared to U.S. firms, U.K. firms experienced a greater increase in audit fees from the pre- to post-signature period.²⁸ Overall, our results suggest that compared to U.S. firms where a signature requirement was not introduced during the sample period, U.K. firms experience a larger

²⁵ We also restrict our U.K. sample to those cross-listed in the U.S. stock market. There are 24 cross-listed U.K. firms (48 firm-years) in our original sample. After sample attrition due to missing data, we have 24 U.K. firm-years for the accrual analysis, 38 U.K. firm-years for the small earnings increase analysis, 40 U.K. firm-years for the ERC analysis, and 31 U.K. firm-years for the audit fee analysis. We then match those firms with U.S. firms by the same criteria as discussed above. The results show that even with the significantly reduced sample size, we continue to find that compared to U.S. firms, U.K. firms have a larger decrease in abnormal accruals ($p < 0.10$), and a larger increase in audit fees ($p < 0.05$) from the pre- to post-signature period. U.K. firms also have a larger decrease in the likelihood of reporting a small earnings increase from the pre- to post-signature period compared to U.S. firms, although not statistically significant at a conventional level ($p = 0.122$). We do not find a significant result for the ERC analysis.

²⁶ We do not perform a comparison between U.K. firms and U.S. firms related to the issuance of qualified audit opinions because qualified audit opinions are generally not issued in the U.S. (i.e., the SEC does not accept qualified audit opinions for publicly traded U.S. companies).

²⁷ With respect to the interaction term in the small earnings increase model, [Ai and Norton \(2003\)](#) and [Norton et al. \(2004\)](#) show that for a logit or probit model, the interaction effect can have a different sign and statistical significance from the sign and statistical significance determined by a t-test on the estimated coefficient of the interaction term alone. Following the suggestions in [Ai and Norton \(2003\)](#), we plot Z-statistics for the total interaction effect of $UK \times SIGNATURE$ for the small earnings increase model when comparing U.K. firms to U.S. firms. The untabulated graph shows that the Z-statistics are reliably negative across the sample observations, which is consistent with the negative sign on the coefficient estimate for $UK \times SIGNATURE$ in the second column of Table 4, Panel A.

²⁸ Accelerated filers in the U.S. may experience a continuing decline in their audit fees after the passage of Auditing Standard No. 5 ([PCAOB 2007](#)). Thus, as a robustness check, we also restrict U.S. firms to non-accelerated filers that do not have a Section 404 internal control report. We also restrict U.K. firms to those with market values less than \$75 million to be consistent with the size of the U.S. control group. The coefficient on *SIGNATURE* remains positive and significant (coefficient = 0.115 and p -value < 0.05).

TABLE 4

**Regression Results on the Association between Signature Requirement and Audit Quality
and Audit Fees for U.K. and U.S. Firms**

Panel A: Audit Quality Measures

	Abnormal Accruals <i>DV = ABS_ACC</i>			Small Earnings Increase <i>DV = INCREASE</i>			Earnings Informativeness <i>DV = RET</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square	+/-	Coeff.	t-stat.
Intercept		0.184	3.55***		-2.607	17.00***		0.238	1.36
UK	?	0.022	1.27	?	0.817	4.03**	?	-0.265	-2.49**
SIZE	-	-0.005	-0.91	-	0.066	0.83	?	-0.034	-2.15**
ROA	-	-0.023	-0.77	-	0.642	0.65	+	0.184	0.44
LEVERAGE	+	-0.047	-1.39*	+	-0.026	0.00	?	0.009	0.13
LOSS	+	-0.006	-0.42	+	-1.675	38.28***	?	-0.010	-0.17
MB	+	0.002	1.42*	+	0.046	8.26***	?	0.020	1.95*
LCACCR	-	-0.022	-0.76	-	0.161	0.12			
CFO	-	-0.040	-0.63	-	0.566	0.41			
VOLATILITY	+	0.025	2.82***	+	-0.433	0.80	?	0.015	0.41
LITIGATE	-	-0.017	-1.13	-	0.310	1.89*	?	-0.057	-0.87
AUDITOR	-	-0.015	-1.31*	-	0.187	0.99	?	0.004	0.09
SIGNATURE	?	0.006	0.35	?	-0.190	0.40	?	0.720	16.57***
UK × SIGNATURE	-	-0.041	-2.32***	-	-0.791	5.29**			
UK × ROA							+	0.208	1.19
SIZE × ROA							+	-0.045	-0.97
LEVERAGE × ROA							-	-0.144	-2.04**
LOSS × ROA							-	0.279	1.05
MB × ROA							+	0.014	2.70***
VOLATILITY × ROA							-	-0.020	-0.56
LITIGATE × ROA							+	0.291	2.33***
AUDITOR × ROA							+	-0.020	-0.22
SIGNATURE × ROA							?	-1.045	-1.82*
UK × SIGNATURE × ROA							+	1.099	1.90**
Industry Dummies	Included			Included			Included		
n	2104			3432			3488		
UK n	1052			1716			1744		
F-value	7.29						33.84		
Likelihood Ratio				312.92					
Adj. R ²	0.07						0.24		
Pseudo R ²				0.16					

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improvement in audit quality and a larger increase in audit fees from the pre- to post-signature period.

Four-Country Firms

We next compare U.K. firms with French firms that are listed on the Paris Stock Exchange, German firms that are listed on the Frankfurt Stock Exchange, The Netherlands firms that are listed

TABLE 4 (continued)

Panel B: Audit Fees

<i>DV = LNAFEE</i>			
	<i>+/-</i>	Coeff.	t-stat.
Intercept		10.034	49.88
<i>UK</i>	?	-5.801	-68.85***
<i>SIZE</i>	+	0.505	27.16***
<i>ROA</i>	-	-0.197	-2.72***
<i>LEVERAGE</i>	+	-0.030	-0.11
<i>LOSS</i>	+	0.123	1.98**
<i>MB</i>	+	0.006	1.27
<i>CFO</i>	+	-0.130	-0.95
<i>VOLATILITY</i>	+	0.107	3.60***
<i>LITIGATE</i>	+	0.404	6.79***
<i>AUDITOR</i>	+	0.168	3.64***
<i>RECEIVABLE</i>	+	1.222	4.52***
<i>INVENTORY</i>	+	0.636	3.64***
<i>FOREIGN</i>	+	0.345	6.58***
<i>BUSY</i>	+	0.058	0.92
<i>SIGNATURE</i>	?	-0.058	-0.82
<i>UK × SIGNATURE</i>	+	0.196	2.51***
Industry Dummies		Included	
<i>n</i>		2368	
<i>UK n</i>		1184	
F-value		1301.27	
Adj. R ²		0.94	

*, **, ***: Significant at 10 percent, 5 percent, and 1 percent levels, respectively.

The t-statistics are adjusted for firm-year clustering effects. p-values are one-tailed for signed expectations and two-tailed for unsigned expectations.

Please see Table 2 for variable definitions.

Variable Definition:

UK = 1 if the firm is a U.K. firm that is traded on the London Stock Exchange, and 0 if the firm is a U.S. firm that is traded on a U.S. stock exchange.

on the Amsterdam Stock Exchange, and Luxembourg firms that are listed on the Luxembourg Stock Exchange. We obtain data for the Four-country firms from DataStream and again match each U.K. firm in our sample with a Four-country firm based on year, two-digit industry code, assets within a range of 20 percent, and profitability based on the closest ROA.

Because the audit fee data in DataStream does not distinguish between audit and nonaudit fees, we lack audit fee data for the Four-country firms, and therefore we focus the comparison between U.K. firms and the Four-country firms on the audit-quality analyses. Since the Four-country firms already had implemented an audit partner signature requirement before implementation in the U.K., there was no change in the signature requirement during our sample period for these countries while U.K. firms did experience a change. Thus, similar to the comparison with U.S. firms, we expect audit quality to improve more for U.K. firms compared to the Four-country firms from the pre- to post-signature period.

The regression results in Table 5 show that the interaction between *UK* and *SIGNATURE* is significantly negative for both the abnormal accrual and small earnings increase analyses ($p < 0.10$ and 0.01, respectively), and the interaction is significantly positive for the qualified audit opinion

TABLE 5
Regression Results on the Association between Signature Requirement and Audit Quality for U.K. and Four-Country Firms

	Abnormal Accruals <i>DV = ABS_ACC</i>			Small Earnings Increase <i>DV = INCREASE</i>			Earnings Informativeness <i>DV = RET</i>			Qualified Audit Opinions <i>DV = QUA_AOP</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square
Intercept		0.186	10.30***		-1.911	13.14		0.158	0.46		-1.869	2.49
UK	-	0.008	1.18	?	0.315	2.73*	?	-0.574	-6.03***	?	0.609	2.03
SIZE	-	-0.006	-4.59***	-	0.085	5.99***	?	0.021	0.98	-	-0.312	13.86***
ROA	-	-0.043	-1.99**	-	1.056	1.26	+	-0.387	-0.36	-	-0.680	2.90**
LEVERAGE	+	-0.002	-0.17	+	-1.972	9.81***	?	0.158	1.52	+	1.061	3.41**
LOSS	+	-0.001	-0.17	+	-1.125	6.77***	?	-0.182	-1.37	+	0.677	4.91**
MB	+	0.002	2.24**	+	0.032	5.92***	?	-0.010	-1.10	-	-0.071	3.55**
LCACCR	-	-0.020	-1.30*	-	0.490	1.25						
CFO	-	-0.035	-1.10	-	-0.632	0.81					-0.203	0.09
VOLATILITY	+	0.029	3.65***	+	-0.648	1.49	?	0.084	1.47	+	0.127	0.60
LITIGATE	-	-0.001	-0.13	-	-0.362	2.73*	?	-0.057	-0.87	+	0.350	0.85*
AUDITOR	-	-0.009	-1.57*	-	-0.149	0.64	?	-0.166	-1.49	+	-0.396	2.02*
RECEIVABLE										?	-1.241	1.59
INVENTORY										?	0.514	0.35***
FOREIGN										+	1.013	9.55
BUSY										?	-0.374	1.76
SIGNATURE	?	-0.019	-3.22***	?	-0.417	5.91**	?	0.660	9.89***	?	-0.075	0.03
UK × SIGNATURE	-	-0.011	-1.32*	-	-0.510	5.51***				+	0.852	2.43*
UK × ROA												
SIZE × ROA												
LEVERAGE × ROA												
LOSS × ROA												
MB × ROA												
VOLATILITY × ROA												
LITIGATE × ROA												
AUDITOR × ROA												
SIGNATURE × ROA												
UK × SIGNATURE × ROA												

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TABLE 5 (continued)

	Abnormal Accruals <i>DV = ABS_ACC</i>			Small Earnings Increase <i>DV = INCREASE</i>			Earnings Informativeness <i>DV = RET</i>			Qualified Audit Opinions <i>DV = QUA_AOP</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square	+/-	Coeff.	t-stat.	+/-	Coeff.	Chi-Square
Industry Dummies		Included			Included			Included			Included	
n		3144			4522			2720			2720	
UK n		1572			2261			1360			1360	
F-value		20.11						14.99				
Likelihood Ratio					384.03						181.932	
Adj. R ²		0.13						0.057				
Pseudo R ²					0.151						0.273	

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively.
The t-statistics are adjusted for firm-year clustering effects. p-values are one-tailed for signed expectations and two-tailed for unsigned expectations.
Please see Table 2 for variable definitions.

Variable Definition:

UK = 1 if the firm is a U.K. firm that is traded on the London Stock Exchange, and 0 if the firm is a French firm, German firm, The Netherlands firm, or Luxembourg firm that is traded on its domestic stock exchange.

analysis ($p < 0.10$), suggesting that compared to Four-country firms, U.K. firms have a larger decrease in abnormal accruals, a larger reduction in the likelihood of reporting a small earnings increase, and a larger increase in the likelihood of receiving a qualified audit opinion from the pre- to post-signature period.²⁹ We do not find a significant increase in the ERC for U.K. firms as compared to Four-country firms from the pre- to post-signature period.

In sum, the results from comparing U.K. firms to control firms generally provide further evidence consistent with our argument that the increased audit quality and audit fees we observe in U.K. firms following the implementation of the U.K. partner signature requirement are likely not attributable to other global events that occurred around the same time.

V. ADDITIONAL ANALYSES

Change Analyses

Although in our main analyses we use a balanced panel design to compare U.K. firms in the one year prior to the partner signature requirement with these same firms in the first year the signature requirement is effective, it is still possible that in the post-signature period firms became financially healthier or other factors changed that drive our results. To control for the year-to-year changes, we perform a strict change analysis by comparing changes in audit quality and audit fees in the year before the signature requirement became effective with changes in audit quality and audit fees during the year the signature requirement became effective. That is, we examine whether there is a change in our audit-quality measures and in audit fees in the U.K. from year $t-2$ to year $t-1$, as compared to changes from year $t-1$ to year t , with year t denoting the first year that firms implement the signature requirement.³⁰ We then create an indicator variable, *CHG_SIGNATURE*, which equals 1 for changes between year $t-1$ and year t , and equals 0 for changes between year $t-2$ and year $t-1$. The dependent variable and all the other control variables are yearly change variables. We require firms to exist in each of the three years ($t-2$, $t-1$, and t).

The results in Table 6, Panel A indicate that *CHG_SIGNATURE* is associated with a decrease in abnormal accruals and in the likelihood of reporting a small earnings increase (both $p < 0.01$), and associated with an increase in the ERC and qualified audit opinions (both $p < 0.01$). The results in Table 6, Panel B show that *CHG_SIGNATURE* is also associated with an increase in audit fees ($p < 0.10$). Thus, our strict change analyses provide further support of the increased audit quality and audit fees after the U.K. firms implement the signature requirement.³¹

²⁹ Similar to the argument for the interaction term in the logit model in Table 4, Panel A (small earnings increase), we plot Z-statistics for the total interaction effect of *UK * SIGNATURE* for the small earnings increase and qualified audit opinion models when comparing U.K. firms to Four-country firms. The untabulated graph shows that the Z-statistics are reliably negative across the sample observations for the small earnings increase model, which is consistent with the negative sign on the coefficient estimate for *UK * SIGNATURE* in the second column of Table 5. In addition, the Z-statistics are reliably positive across the sample observations for the qualified audit opinion model, which is consistent with the positive sign on the coefficient estimate for the *UK * SIGNATURE* interaction term in the fourth column of Table 5.

³⁰ Because there are now only two years of data in our main analyses (years $t-1$ and t), we would not have a test variable for the change analyses (i.e., every observation would be coded as a 1 to indicate a change from the pre- to the post-period). Thus, we expand our data to three years ($t-2$, $t-1$, and t) and examine pre-signature changes to signature changes.

³¹ For completeness, we also run analyses to compare the changes in the year of implementation ($t-1$ to t) to changes in the year after the implementation (t to $t+1$). We find *CHG_SIGNATURE* is associated with a decrease in abnormal accruals ($p < 0.10$), a decrease in the likelihood of reporting a small earnings increase ($p < 0.01$), and an increase in audit fees ($p < 0.01$). However, we fail to find a significant association between *CHG_SIGNATURE* and a change in qualified audit opinions and a change in the ERC. Thus, there may be a lingering effect of the signature requirement that lasts longer than the first year after the implementation of the signature requirement.

TABLE 6

Regression Results on the Association between the Change in the Signature Requirement and the Change in Audit Quality and Audit Fees for U.K. Firms

Panel A: Audit Quality Measures

	Abnormal Accruals <i>DV = CHG_ABS_ACC</i>			Small Earnings Increase <i>DV = CHG_INCREASE</i>			Earnings Informativeness <i>DV = CHG_RET</i>			Qualified Audit Opinions <i>DV = CHG_QUA_AOP</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.
Intercept		0.006	0.79		0.081	4.44***		-0.387	-10.93***		0.021	2.07
<i>CHG_SIGNATURE</i>	-	-0.028	-2.74***	-	-0.224	-9.02***	?	1.251	38.94***	+	0.024	2.33***
<i>CHG_SIZE</i>	-	0.055	4.00***	-	0.069	2.04**	?	0.109	2.58***	+	-0.005	-0.38
<i>CHG_ROA</i>	-	0.044	1.90*	-	-0.066	-1.31*	?	0.003	0.03	-	-0.031	-1.50*
<i>CHG_LEVERAGE</i>	+	0.012	0.27	+	-0.210	-1.67*	?	-0.141	-1.27	+	0.053	1.05
<i>CHG_LOSS</i>	+	0.008	0.79	+	-0.172	-6.30***	?	-0.128	-3.56***	+	-0.003	-0.21
<i>CHG_MB</i>	+	0.000	0.50	+	-0.003	-1.86*	?	0.005	2.14**	+	-0.001	-1.21
<i>CHG_LCACC</i>	-	-0.055	-2.87***	-	-0.020	-0.58						
<i>CHG_CFO</i>	-	-0.007	-0.20	-	0.044	0.49				+	0.019	0.50
<i>CHG_VOLATILITY</i>	+	0.056	1.67*	+	0.050	0.78	?	-0.149	-1.39	+	0.037	1.03
<i>LITIGATE</i>	-	-0.002	-0.15	-	0.055	1.79*	?	0.034	0.88	?	0.000	-0.02
<i>CHG_AUDITOR</i>	-	-0.011	-0.31	-	-0.168	-1.80**	?	0.062	1.77*	+	-0.049	-1.33
<i>CHG_RECEIVABLE</i>										?	-0.213	-2.72***
<i>CHG_INVENTORY</i>										?	-0.344	-2.99***
<i>CHG_FOREIGN</i>										+	0.017	0.94
<i>BUSY</i>										?	-0.021	-2.09**
<i>CHG_SIGNATURE</i> × <i>CHG_ROA</i>							+	0.381	3.25***			
<i>CHG_SIZE</i> × <i>CHG_ROA</i>							+	0.018	0.28			
<i>CHG_LEVERAGE</i> × <i>CHG_ROA</i>							-	-0.149	-1.31*			
<i>CHG_LOSS</i> × <i>CHG_ROA</i>							-	0.265	2.67***			
<i>CHG_MB</i> × <i>CHG_ROA</i>							+	0.003	0.88			
<i>CHG_VOLATILITY</i> × <i>CHG_ROA</i>							?	-0.094	-0.92			

(continued on next page)

TABLE 6 (continued)

	Abnormal Accruals <i>DV = CHG_ABS_ACC</i>			Small Earnings Increase <i>DV = CHG_INCREASE</i>			Earnings Informativeness <i>DV = CHG_RET</i>			Qualified Audit Opinions <i>DV = CHG_QUA_AOP</i>		
	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.	+/-	Coeff.	t-stat.
<i>LITIGATE</i> × <i>CHG_ROA</i>												
<i>CHG_AUDITOR</i> × <i>CHG_ROA</i>												
n		1474			1828			2024			1300	
F-value		6.79			12.57			106.49			2.60	
Adj. R ²		0.04			0.07			0.47			0.02	

Panel B: Audit Fees

	<i>DV = CHG_LNAFEE</i>		
	+/-	Coeff.	t-stat.
Intercept		0.044	3.24***
<i>CHG_SIGNATURE</i>	+	0.021	1.58*
<i>CHG_SIZE</i>	+	0.101	5.90***
<i>CHG_ROA</i>	-	0.025	0.98
<i>CHG_LEVERAGE</i>	+	-0.032	-0.48
<i>CHG_LOSS</i>	+	-0.024	-1.56
<i>CHG_MB</i>	+	0.000	0.45
<i>CHG_CFO</i>	+	-0.101	-2.23
<i>CHG_VOLATILITY</i>	+	0.220	6.21***
<i>LITIGATE</i>	?	-0.003	-0.18
<i>CHG_AUDITOR</i>	+	0.095	1.73*

(continued on next page)

TABLE 6 (continued)

<i>DV = CHG_LNAFEE</i>			
	<i>+/-</i>	<i>Coeff.</i>	<i>t-stat.</i>
<i>CHG_RECENVABLE</i>	<i>+</i>	-0.203	-2.05
<i>CHG_INVENTORY</i>	<i>+</i>	-0.150	-1.06
<i>CHG_FOREIGN</i>	<i>+</i>	0.015	0.66
<i>BUSY</i>	<i>?</i>	-0.020	-1.45
<i>n</i>		1636	
<i>F-value</i>		8.01	
<i>Adj. R²</i>		0.06	

*, **, *** Significant at 10 percent, 5 percent, and 1 percent levels, respectively.
The t-statistics are adjusted for firm-year clustering effects. p-values are one-tailed for signed expectations and two-tailed for unsigned expectations.
Please see Table 2 for variable definitions. All other variables are yearly change variables.

Variable Definition:
CHG_SIGNATURE = 1 if the year is from *t*-1 to *t*, which is the signature requirement implementation year, and 0 if the year is from *t*-2 to *t*-1.

We also perform change analyses where we compare U.K. firms to U.S. firms and Four-country firms (results not tabulated). The test variable is a country indicator variable (*UK*), which equals 1 if the observation is a U.K. firm, and 0 if a U.S. firm or a Four-country firm. The dependent variable and all other control variables are yearly change variables from year $t-1$ to year t . The coefficients of -0.026 and -0.011 , respectively, show that *UK* is negatively associated with a change in abnormal accruals when compared to U.S. and Four-country firms ($p < 0.01$ and $p < 0.05$, respectively), and the coefficients of -0.079 and -0.071 , respectively, show that *UK* is negatively associated with a change in small earnings increase when compared to U.S. and Four-country firms ($p < 0.01$). Finally, the coefficient of 0.232 shows that *UK* is positively associated with a change in ERC when compared to Four-country firms ($p < 0.05$), the coefficient of 0.020 shows that *UK* is positively associated with a change in qualified audit opinions when compared to Four-country firms ($p < 0.01$), and the coefficient of 0.038 indicates that *UK* is positively associated with an increase in audit fees when compared to U.S. firms ($p < 0.01$). There is no significant association between *UK* and the change in ERC when compared to U.S. firms.

Therefore, our additional change analyses results are, in general, consistent with our main findings that the audit quality of U.K. firms improves more compared to U.S. firms or Four-country firms after the U.K. implemented the partner signature requirement. Meanwhile, the audit fees of U.K. firms also increased more compared to U.S. firms after the partner signature requirement.

Auditor Type

The auditor partner signature requirement might differentially affect global network firms as compared with smaller auditors. Just as global network firms have a larger investment in reputational capital (DeAngelo 1981), so do may partners from these firms. We define Big 6 auditors (the Big 4 plus Grant Thornton and BDO Seidman) as global network firms and interact the Big 6 indicator variable with the partner signature indicator variable (*SIGNATURE*). We find some evidence suggesting that the effects of the partner signature requirement are stronger for global network firms (results not tabulated). Specifically, the interaction between *SIGNATURE* and the Big 6 indicator variable is negative for the small earnings increase analysis (coefficient = -0.610 and $p < 0.05$), and the interaction is positive for the ERC analysis (coefficient = 0.404 and $p < 0.05$) and the likelihood of reporting a qualified audit opinion analysis (coefficient = 0.770 and < 0.10). The interaction is not significant in the abnormal accrual and audit fee analyses.

VI. SUMMARY, IMPLICATIONS, AND LIMITATIONS

We examine whether the implementation of an audit partner signature requirement in the U.K. has led to an improvement in audit quality. We find that abnormal accruals and the likelihood of meeting an earnings threshold decline after the effective date of the partner signature requirement, and we find that the incidence of qualified audit opinions and earnings informativeness increase. In addition to examining changes in audit quality after the introduction of the partner signature requirement, we also examine changes in audit fees and find a significant increase in audit fees in the U.K. Moreover, when we compare U.K. firms with U.S. firms and Four-country firms, where there was no change in the partner signature requirement, our results are generally consistent with an increase in audit quality and fees in the U.K. as compared to changes in quality and fees in the U.S. and Four-country firms. These findings suggest that our results are not likely to be attributable to correlated omitted variables. Taken together, our evidence suggests that the partner signature requirement in the U.K. has benefited investors and other financial statement users, but that these benefits have come at the cost of significantly higher audit fees. Whether these benefits exceed the costs is a decision best left to regulators and other policy makers.

Our study is subject to limitations. First, although the U.K. and the U.S. share many similar cultural and institutional characteristics, there are important differences between the two countries. Most significantly, the legal liability regime in the U.K. is much more limited than in the U.S., although the partner signature requirement introduced in the U.K. was fashioned to hold constant the liability exposure of individual audit partners and any such regime introduced in the U.S. would likely be patterned in a similar fashion. Second, there is no control group in the U.K. that does not implement a signature requirement. Although we examine the potential impact of other regulations occurring in the U.K. around the same time as the partner signature requirement on audit quality, we cannot completely rule out the possibility that other contemporaneous events occurred in the U.K. that could drive our results. Third, the PCAOB's recent proposal requires audit partner identification but does not require an audit partner signature. In many cases, the partner signature in the U.K. is not observable in audit reports available to the general public. Presumably, the partner signs the audit report that is delivered to the client, but copies of the audit report that are more widely disseminated to the general public in the U.K. simply identify the partner's name. This practical reality increases the relevance of the U.K. experience to the PCAOB's proposed rule. Whether the PCAOB's plan to identify the partner, rather than having the partner sign his or her name to the version of the report that is delivered to the client, would obviate the audit-quality benefits observed in the U.K. is left to future research.

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